To: Region 10 Environmental Protection Agency (EPA)

From: (b) (6), Ph.D.

RE: EPA Region 10 Explanation of Significant Differences (ESD) for Lower Duwamish Waterway (LDW) Superfund Site

Thank you for providing an opportunity to comment on EPA's decision to change the cleanup standards for carcinogenic polyaromatic hydrocarbons (cPAHs) for the LDW site. I have been involved in issues related to the LDW cleanup for nearly two decades as part of my faculty responsibilities at the University of Washington, so I am very familiar with the history of the site. I want to say from the outset, however, that the opinions expressed below are mine and mine alone; they do not represent the University of Washington or any entity therein.

I received a request to review the scientific basis for the ESD from the Duwamish River Cleanup Coalition (DRCC) after the EPA's February 17th ESD informational meeting. In response to that request, I have reviewed the 2017 revised IRIS document, the 2017 "Toxicological Review of Benzo(a)pyrene" and its supplement, as well as the EPA's Scientific Advisory Board's (SAB) review of the Benzo(a)pyrene document. I also spoke with two colleagues who were members of the EPA's SAB. I am familiar with EPA's process for updating IRIS assessments, having been a member of a National Academy of Science review of EPA's updated IRIS assessment for methylmercury in 2000. I am also familiar with the types of studies that are included in the toxicological review, having conducted toxicology research for many decades.

It was evident to me that the process EPA used to update the IRIS assessment for benzo(a)pyrene, which included reviewing available research studies to examine cancer and noncancer health effects and choosing a "critical study" to derive each of the updated risk assessment values, was in accordance with EPA's guidelines for this process. Since the basis for the ESD is the change in the "Quantitative Estimate of Carcinogenic Risk from Oral Exposure" to benzo(a)pyrene, I will confine my comments to this aspect of the IRIS assessment.

The assessment relies on two studies using animal models (a mouse study and a rat study) in calculating and supporting the new quantitative estimate. The new quantitative estimate indicates that benzo(a)pyrene, while still being classified as a known human carcinogen, is approximately seven times less potent than data used in the previous risk assessment indicated. The "critical studies" used for the new risk assessment are newer than the ones used in the previous assessment, but they are still over 20 years old. It is not unusual for EPA to update their risk assessment as new studies are published; this is what happened with the risk assessment for methylmercury that I helped review. For methylmercury, the "critical study" that was proposed by EPA to update the risk assessment was nearly 10 years old at the time the update was proposed. What was significant, however, is that during the 10 years that passed since the critical study was published, numerous additional studies were published to provide strong support or "weight of evidence" for the change.

What is worrisome about the re-assessment for benzo(a)pyrene, is that the data used to support the new estimate are from studies that are more than 20 years old and there is no discussion of additional studies that are in agreement with these data in the IRIS document. The "weight of evidence" discussion typically includes a comparison of the results from studies conducted before and after the "critical

studies" to provide confidence that the new estimate is supported by other research. In this case, the results of the two studies certainly are not consistent with prior research which indicates that benzo(a)pyrene is 5 to 10 times more potent than the new estimate; and more importantly there are no data presented (weight of evidence) in support of the new estimate from studies published over the past 20 years. The current scientific weight of evidence, therefore, does not support using the new estimate for risk management decisions, such as the ESD, in my opinion.

In addition to the scientific argument against the ESD, I was moved by the comments from the community impacted by the ESD that were published for the Portland Harbor Superfund site. Several of the community members looked at the ESD through the lens of environmental justice and equity, pointing out that the ESD would essentially condemn them to live with the legacy of contaminants from industries that benefited from polluting their environment for decades. So, from an environmental justice and equity perspective, what EPA is proposing seems inconsistent with their environmental justice policies.

In light of the scientific and environmental justice issues discussed above, I implore you to pause plans for changing the cleanup standards for cPAHs until such time that the new EPA Administration can review the science behind these risk management decisions. It would also be appropriate for the newly formed "White House Environmental Justice Advisory Council" to review this process as well as the "National Environmental Justice Advisory Council" to ensure EPA is living up to its commitment to address current and historic environmental injustices.

Thank you,

(b) (6)

(b) (6), Ph.D.